

In The Application Of

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Title Of The Invention

TRANSMISSION TOOL

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BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to a transmission tool. More particularly, the present invention relates to a transmission tool allowing easy replacement of a worn out bushing.

1 **Description of the Prior Art:**

Numerous innovations for transmission tool have been provided in the prior art that are described as follows. Even though these innovations may be suitable for the specific individual purposes to which they address, they differ from the present invention as hereinafter contrasted.

6 In U.S. Patent, 5,379,503, invented by, Fakult, invented by, Extraction tool for transmissions, an extraction tool for transmission or the like units comprising a long tubular body enclosing a rotatably mounted operating part having an expansible gripping unit at one end to engage withing a mating part, and a handle at the opposite end to rotate the operating part to cause the gripping unit to in turn grip said mating
11 part to facilitate withdrawal of clutch and gear units or the like in which the mating part is positioned.

1 In U.S. Patent, 5,345,845, invented by, Myers, invented by, Right angle torque
transmission tool, a torque transmission tool is arranged to direct torque application
from a torque wrench to an associated fastener. To this end, an elongate housing is
arranged to receive torque from a first end of the housing and direct such torque
through gear inter-engagement to a driven shaft having a through-extending
6 polygonal bore arranged to receive various inserts therewithin for directing torque
transmission to various tools and fasteners.

 In U.S. Patent, 4,586,228, invented by, Rodolf, invented by, Tool kit for
installing transmission seals, a composite seal-installing driver includes an elongated
base or handle portion with a socket in one end and any selected one of a plurality of
11 interchangeable adapters each having an end projection manually fittable in the base
socket so as to connect the base and the adapter. Each adapter has a flat flange for
engaging the back of an annular seal to be installed in the hole of the transmission
housing into which a shaft of the transmission projects and a central cylindrical
projection over which the seal ring is fitted and slid rearward into engagement with
16 the flange. The cylindrical projection is fitted into the transmission housing hole and

1 guides movement of the seal toward the hole. Force is applied to the base of the
driver to press-fit the seal into the hole. The diameters and lengths of the central
projections of the adapters vary so that, by selecting the appropriate adapter, seals of
different sizes can be installed in transmissions of different manufacturers.

In U.S. Patent, 4,583,275, invented by, Diaz, invented by, Transmission direct
6 clutch drum removing and installing tool, a transmission direct clutch drum removing
and installing tool for use on a General Motors Corporation Turbo-Hydromatic 400
automatic transmission. The tool comprises a round plate platform base (20) and a
spacer channel (26) attached to its periphery, each having an opening in the center.
A plurality of legs (30), each having a retainer (34) on its lower end, are pivotally
11 connected to the bottom of the base (20). A T-shaped operating handle slideably
penetrates the opening in the base (20) and channel (26), and contains a leg directing
expansion guide disc (40) on the end opposite the handle grip. Between the base (20)
and disc (40) is a free floating locking disc (46) that assures the alignment of the legs
(30) without binding or internal bowing. To operate the tool, the handle extended
16 allowing the legs (30) to be grouped together and placed within the sides of the clutch

1 drum. When the handle section (36) is pushed downwardly, the legs (30) are forced
outwardly grabbing the sides of the clutch drum. Thus, allowing the operator to
remove or install the clutch drum.

The above patented inventions differ from the present invention because they
fail to describe or claim at least one combination of the following features depicted
6 in the present invention: jig, jig first member with jig first member shroud, jig second
member pin, reamer, reamer collar, reamer shaft thread, reamer shaft cutter, and
reamer shaft nut.

Numerous innovations for transmission tools have been provided in the prior
art that are adapted to be used. Even though these innovations may be suitable for
11 the specific individual purposes to which they address, they would not be suitable for
the purposes of the present invention as heretofore described.

SUMMARY OF THE INVENTION

The present invention relates to a transmission tool. More particularly, the present invention relates to a transmission tool allowing easy replacement of a worn out bushing.

The types of problems encountered in the prior art are transmission bushing replacement requires disassembly of the transmission.

In the prior art, unsuccessful attempts to solve this problem were attempted namely: various tools to facilitate transmission disassembly. However, the problem was solved by the present invention because the bushing can be changed transmission without disassembling the transmission.

1 Innovations within the prior art are rapidly being exploited in the field of
facilitating mechanical labor required to perform routine transmission repairs.

The present invention solved a long felt need for an easy two step process to
replace a worn out bushing without disassembly of the transmission.

6 Accordingly, it is an object of the present invention to provide a transmission
tool having a jig, reamer, and inserter.

More particularly, it is an object of the present invention to provide a jig having
a jig body, jig first member with a jig first member shroud, a jig cylinder, and a jig
second member with a jig second member pin.

11 In keeping with these objects, and with others which will become apparent
hereinafter, one feature of the present invention resides, briefly stated, in the reamer
having a reamer collar with a reamer collar channel, reamer shaft, reamer shaft cutter,
reamer shaft thread, and reamer shaft nut.

1 When the inserter is designed in accordance with the present invention, it has
a inserter male member upon which a bushing is positioned.

6 The novel features which are considered characteristic for the invention are set
forth in the appended claims. The invention itself, however, both as to its
construction and its method of operation, together with additional objects and
advantages thereof, will be best understood from the following description of the
specific embodiments when read and understood in connection with the
accompanying drawings.

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LIST OF REFERENCE NUMERALS UTILIZED IN THE DRAWINGS

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10 - transmission tool (10)

12 - jig (12)

12A - jig body (12A)

12B - jig first member (12B)

12BA - jig first member shroud (12BA)

12C - jig cylinder (12C)

12D - jig second member (12D)

12DA - jig second member pin (12DA)

11

14 - reamer (14)

14A - reamer collar (14A)

14AA - reamer collar channel (14AA)

14B - reamer shaft (14B)

14BA - reamer shaft cutter (14BA)

- 1 14BB - reamer shaft thread (14BB)
- 14BC - reamer shaft nut (14BC)
- 16 - inserter (16)
- 16A - inserter male member (16A)
- 18 - bushing (18)

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a top front perspective view of a transmission tool (10) exhibiting a reamer (14) inserted into a jig (12).

FIGURE 2 is a top front perspective view of a transmission tool (10) exhibiting a reamer (14) being inserted into a jig (12).

6 **FIGURE 3** is a top front perspective view of an inserter (16) exhibiting a bushing (18) being inserted thereon.

FIGURE 4 is a top front perspective view of an inserter (16) positioned within a jig (12).

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DESCRIPTION OF THE PREFERRED EMBODIMENT

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Referring to **FIGURE 1** and **FIGURE 2** which are a top front perspective views of a transmission tool (10) exhibiting a reamer (14) inserted into a jig (12) and a reamer (14) being inserted into a jig (12), respectively. The transmission tool (10) comprises a jig (12) having a jig body (12A) securely connected at a front distal end to a jig first member (12B) and further securely connected at a rear distal end to a jig second member (12D). The jig first member (12B) preferably comprises a jig first member shroud (12BA) positioned around an outer surface thereof. The jig first member shroud (12BA) functions to protect the inside of the transmission opening when during removal and insertion of the bushing. The jig first member shroud (12BA) is manufactured from a material selected from a group consisting of plastic, plastic composite, nylon, rubber, and rubber composite. The jig second member (12D) comprises a slightly smaller diameter than a diameter of the jig body (12A). The jig body (12A) comprises a jig second member pin (12DA) extending outwardly therefrom. A hollow jig cylinder (12C) is positioned through the jig body (12A) and the jig first member (12B) and the a jig second member (12D).

1 The transmission tool (10) further comprises a reamer (14) having a reamer
collar (14A) with a threaded cylinder centrally positioned there through. The reamer
collar (14A) comprises a reamer collar channel (14AA) therein. The reamer (14)
further comprises a reamer shaft (14B) having a reamer shaft thread (14BB)
positioned at a back distal end thereof. The reamer shaft (14B) comprises a slightly
6 smaller diameter than a diameter of the jig cylinder (12C) to enable it to be rotatably
mounted therein. The reamer shaft (14B) further comprises a reamer shaft nut (14BC)
securely attached at a rear distal end thereof. The reamer shaft (14B) further
comprises a reamer shaft cutter (14BA) positioned at a front distal end thereof. The
reamer shaft cutter (14BA) is preferably removably attachable to the reamer shaft
11 (14B) which enables a user to exchange the cutting apparatus when it becomes dull
during use.

 The jig (12), reamer (14), and inserter (16) are manufactured from a material
selected from a group consisting of steel, stainless steel, and titanium.

1 Referring to **FIGURE 3** and **FIGURE 4** which are a top front perspective view
of an inserter (16) exhibiting a bushing (18) being inserted thereon and an inserter
(16) positioned within a jig (12) having a bushing (18) positioned on a inserter male
member (16A), respectively. The inserter (16) has a slightly smaller diameter than
the reamer collar channel (14AA) allowing a user to easy insertion there through. The
6 inserter (16) further comprises an inserter male member (16A) having a slightly
smaller diameter than a bushing (18).

A user securely positions the jig (12) on a transmission by inserting the jig first
member (12B) into a complimentary opening therein. The jig (12) is securely held
in place by a fastening device securely attached to the transmission housing. After the
11 jig (12) is securely positioned at a proper angle to the transmission housing, the user
inserts the reamer (14) into the jig (12) positioning the reamer shaft (14B) into the
jig cylinder (12C) and concurrently the jig first member shroud (12BA) over the jig
second member (12D). The jig second member pin (12DA) is positioned within the
reamer collar channel (14AA) locking both pieces together. The use then rotates the
16 reamer shaft (14B) by utilizing a socket wrench on the reamer shaft nut (14BC)

1 until the reamer shaft cutter (14BA) extends into and removes the pre-existing worn
out bushing. After the old bushing and its pieces are removed, the use disengages the
reamer (14) from the jig (12) and inserts the inserter (16) through the jig cylinder
(12C). A new bushing (18) is positioned on the inserter male member (16A) which
is inserted into position where the old worn out bushing was located. The job is
6 completed after insertion of the new bushing when the jig (12) and inserter (16) are
removed and de-fastened from the transmission housing.

It will be understood that each of the elements described above, or two or more
together, may also find a useful application in other types of constructions differing
from the type described above.

11 While the invention has been illustrated and described as embodied in a
transmission tool, it is not intended to be limited to the details shown, since it will
be understood that various omissions, modifications, substitutions and changes in the
forms and details of the device illustrated and in its operation can be made by those
skilled in the art without departing in any way from the spirit of the present
16 invention.

1 Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention.

6 What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.